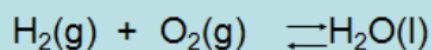


Review: Concentration



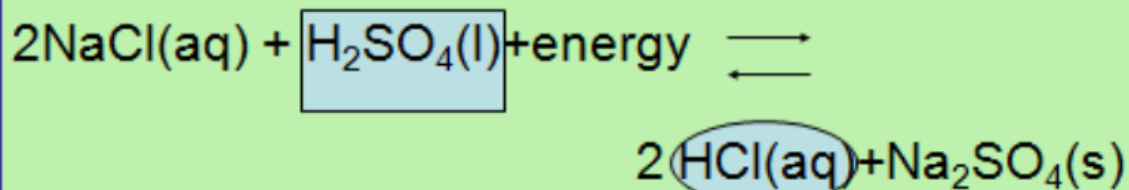
How can you make the equilibrium shift

To the left? *add H₂O*
remove H₂ or O₂

To the right?

add H₂ or O₂
remove H₂O

Examples:




To increase HCl(aq) Add NaCl or H₂SO₄
Remove Na₂SO₄
Increase Temperature


To increase H₂SO₄(l) Add HCl (aq) or Na₂SO₄
Remove NaCl
Lower the temperature

Volume Change (inversely related to pressure)



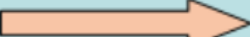

GASES ONLY

The total number of moles of reactants and products must be considered with volume change.

 Increasing volume → causes a shift to the side with more particles
or
decr P

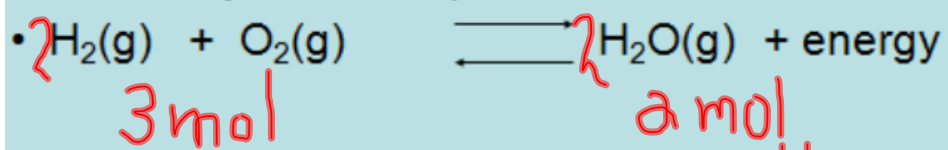
 Decreasing volume → causes a shift to the side with fewer particles
or
Incr. P

Example:

- What way will the equilibrium shift?
- $\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons \text{H}_2\text{O}(\text{g}) + \text{energy}$
- A) increase pressure 
- B) increase volume 
- C) decrease pressure 
- D) decrease volume 

Example:

- What way will the equilibrium shift?



- A) increase pressure → Right
- B) increase volume → Left
- C) decrease pressure → Left
- D) decrease volume → Right